



H I G H E R E D U C A T I O N



Higher Education Overview

By Grant Crawford

After careful consideration, North Dakota took a chance and made a giant leap forward. We became the first and only state to combine many university system services with K-12 and government into joint offerings. This three-way information technology partnership has resulted in exciting changes for us. Through this culture of collaboration, we walk a new path, untried elsewhere in the country. This path provides new opportunities and services for the citizens of North Dakota.

Probably the most significant testament to this collaboration is the staff that did it willingly. This was not a change borne out of intense financial pressure, nor was it a change brought about by administrative or legislative decree — it was done because it made sense to work together ... and because the other partners involved tried to understand and appreciate our issues as we tried to understand and appreciate theirs. The progress we've already made through investments in our state and our number one resource, our people, is astounding. As a result, the possibilities for everyone continue to grow.

Within higher education administration through thoughtful implementation of our ConnectND project, we can minimize duplication of effort for applicants, provide clearer student records, and improve the student's chance for success. We've passed the stage where college students stood in line for hours to register for classes, often to be told that after several hours of waiting, those courses were filled. But we still have improvements to make to provide the online services people expect in the age of Internet commerce. As ConnectND reaches out to all campuses, students will be able to register for classes on-line at their own convenience, apply for financial aid over the Internet, enjoy faster application processing times, and reduce paper waste at the same time. Campuses will be able to

recruit students and collect fees online through streamlined resources.

Through advancements in technology, the information we seek is no longer located solely on some library shelf. For years it has been unnecessary to stand for hours reviewing card catalogs to find the right book for a certain assignment. Increasingly, students do not need the hard copy found in books or periodicals to research papers — the information is available electronically. And if the information is available electronically, we can even omit the trip to the library. With the upcoming enhancements to the Online Dakota Information Network (ODIN), patrons will more often be able to use "virtual" libraries to collect information via the Internet. Again, because technology is the catalyst to an advanced future, North Dakota entities combined efforts and programs to create electronic ease and efficiency in the way we locate information.

Because of explosive growth in video conferencing using Interactive Video Networking (IVN), North Dakota students are able to experience face-to-face education from almost 200 locations around the state. Best of all, they can interact with students and professors as if they shared one geographic location. This vastly improves course alternatives and the richness of an education in a rural setting.

As we implement better services, students no longer have to limit their education to one institution. Through Internet courses they can obtain a degree in Management at Minot State University, they can take Electric Power Technology at Bismarck State College, and they can explore Technology Teacher Education at Valley City State University.

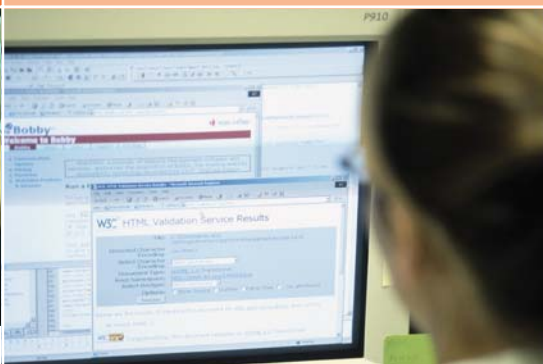
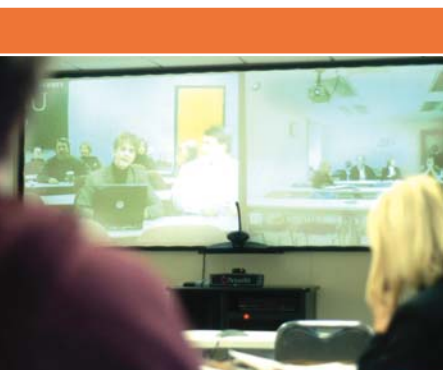
These leading edge services are available because of improved communication and technology skills found right here in North Dakota. Students attending college in North Dakota know our State is a great place to be. They want to study here, graduate here, and hopefully stay and work in a state that invests in their future. They are no longer limited by bricks and mortar — now by their own imaginations. We feel it is important to secure the future of education for today's youth by advancing technology beyond the boundaries of tradition.

In short, we are creating systems that obey the "Principle of Least Astonishment" — things work the way people think they should. All of this is happening because we joined efforts and ideas, working together to reach a common goal. We may not be as populous as other states, but we certainly can provide leading edge services and opportunities for our citizens. With an environment like this, I personally can't wait to see what tomorrow brings!

Grant Crawford, Chief Information Officer
North Dakota University System

GOAL ONE

Improve North Dakota University System (NDUS) information technology-enabled business processes and services.



STRATEGIES

- With state government, implement the new ConnectND administrative system.
- Begin installation of Online Dakota Information Network's (ODIN) new library system.
- Significantly expand Interactive Video Network (IVN) video networking services within the North Dakota University System, state and local government, K-12 schools and non-profit organizations.

We strive to deliver the most effective technology we can for the money we have. To that end, ConnectND, our new Enterprise Resource Planning (ERP) system, allows school administrators, faculty and students to conduct business online with applications such as financial management, purchasing, budgeting, human resources, payroll, asset management and student information. Not only will ConnectND bring improved administrative services to the North Dakota University System's eleven campuses, it will also provide the same integrated services to state government. To illustrate our ability to make progress, in less than five months we were able to use the new system for admission and recruitment services at two pilot campuses (Valley City State University and Mayville State University). Normally, such a step takes one to two years. Because of the vast number of services offered and the complex nature of administering state government and a whole university system with one software package, it will take us the next two years to finish the installation and configuration of the software. To this end almost one hundred staff representing all eleven campuses and the system office will configure and test as well as migrate existing student records to the new system. This development requires that agencies and governments work together to minimize duplication efforts, increase the sharing of common business practices, and foster innovations in the application and deployment of information technology. Such an implementation will be unique in the country.

Another program that enhances the quality of life in North Dakota is the replacement of the Online Dakota Information Network's library system. It provides public access to library information and research materials of its more than 50 member libraries. Increasingly, people no longer visit libraries to check out books. It's not the hard copy they want, but the information provided inside — and they can now access this information over the Internet from a classroom or within their own homes. With continued funding and updates, technology experts will replace the existing library management software found in this "virtual" library system, as well as provide common hardware, platforms and support.

Higher education officials are also working to continue their six-fold increase in the interactive video network (IVN), thereby increasing the benefits of distance education and bringing more learning opportunities to students and faculty, state and local governments, and nonprofit organizations. IVN has already created enormous opportunities for students who choose to take advanced classes such as math, specialized sciences and language courses not available within their own schools because of teacher shortage or qualification restrictions. With the increasing number of high school, advanced placement and dual-credit courses available online, a statewide web-based clearinghouse of course offerings will be developed in 2003.

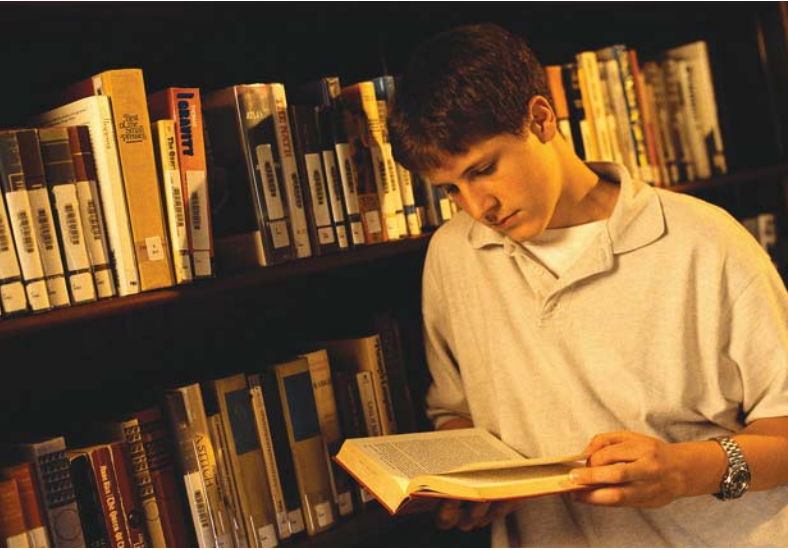


IVN has already created enormous opportunities for students who choose to take advanced classes such as math, specialized sciences, and language courses that are not available within their own schools.



GOAL TWO

Support North Dakota University System's (NDUS) infrastructure needs.




STRATEGIES

- Offer reliable, cost-effective and appropriate North Dakota University System network services.
- Provide middleware tools and data to help people more easily use networked resources and services with security and privacy.
- Enable libraries to provide easy access to licensed electronic information.
- Provide information technology architecture leadership.

“Technology must obey the principal of least astonishment.” In other words, computer systems should work the way people expect them to work. The glue that holds these systems together is called an infrastructure. From years of experience we learned that “the systems of today are the components of tomorrow.” What that means is the very complicated stand-alone e-mail package of yesteryear has been integrated with calendaring and web-browsing to provide what the industry calls a “collaboration toolset,” and it is all connected together seamlessly by a wide area network such as STAGEnet. Users of these services expect fast, efficient and intuitive ways to communicate with the click of a button.

Because of security, privacy and cost issues, we cannot allow unfettered use of our services. People need IDs, passwords, and authorization to use specific services. The software that manages this aspect of the infrastructure is called “middleware.” Having software to control access to services is not enough. There must be policies to guide the implementation of the middleware – essentially, the rules that we operate by in allowing access and encouraging good behavior. These policies must be developed and updated with the involvement of the communities of people who use the services, and keeping in mind the purpose of the facilities, and the inherent security required to protect the rights of all parties involved.

Infrastructure needs for North Dakotans extend into libraries, where in the past people traveled to a facility and checked out a book. Information is no longer just found in books, as subscriptions to very large, remote databases and publications are becoming affordable due to inter-library cooperation that allows bulk buying. These kinds of new



“North Dakota is one of the very few states where all higher education institutions share an IT service infrastructure. It has proven to be a very successful model because it provides a significant level of computing and networking capabilities and support for students, faculty and staff, while holding down costs.”

facilities bring the largest information collections within reach of the most remote of North Dakota centers.

Finally, information technology architecture leadership is a key in supporting NDUS infrastructure needs. This leadership not only develops an infrastructure appropriate to higher education’s needs, it allows us to work with state government and the K-12 sector to develop statewide standards for the implementation and use of technology. In the end, this means the services work the way people expect – fast, efficient and easy.

GOAL THREE

Improve or enhance North Dakota University System's collaborative efforts.

STRATEGIES

- Fully implement a North Dakota University System help desk.
- Improve communication with all stakeholders of North Dakota University System/Common Information Service (NDUS-CIS).
- Collaborate with North Dakota University System campuses, K-12, state and local governments, and libraries to identify appropriate learning and research support systems.
- Work with Online Dakota Information Network (ODIN) libraries to expand digital holdings.
- Promote Internet2 and advanced networking.
- Provide training and support for network videoconferencing user groups.

People with ideas working together tend to produce products and services with improved efficiencies. If this way of working becomes commonplace within a community, you have developed a “culture of collaboration.” Our challenge is to continue doing this in an increasingly complex environment. It takes a significant amount of effort to coordinate the activities on one campus, let alone a whole state. We keep our sanity by working on the interfaces — the places where the “communities” touch. Mostly, this is where they interchange information. As an example, the North Dakota University System help desk presents a collaborative opportunity, specifically because students’ “work” days don’t typically end at 5 p.m. They often study during night hours, and can’t put questions on hold until the morning. Students experience a need for information 24 hours a

day, whether it's for a class they are taking at their local university, or one from across the state. Through technology in North Dakota, we are trying to give them the access needed. By working together to provide off-hour support for distance education students through supportive help desks, these students can receive answers to their questions day or night.

We will work harder to communicate with our partners and within our community, as well as among other technology groups in the state. This communication must easily reach from every campus administrator to every staff member. One way we will do this is by appointing a communications coordinator who can relay technical messages to a non-technical audience.

The Online Dakota Information Network (ODIN) helps individuals, agencies and government work together to increase electronic subscriptions, research journals and databases available to member libraries (and all North Dakota libraries where possible). ODIN provides public access to library information and research materials to its member libraries and acts as a virtual library for on-line users. By joining efforts and upgrading technology, the future of ODIN will see improved services, speed and efficiency, and allow its users to access information with technology in an even more timely manner than they do today.

Now that many citizens have come to rely on the Internet, a new form of communication is emerging within higher education. Internet2 is the "next network." In the future, Internet2 will help North Dakotans transmit information more efficiently. It provides a higher connection speed and is currently used for research. It will be used to develop, test, and change network protocols, thereby resulting in better and faster ways of transmitting data without swamping the current network. Currently, participating in Internet2 activities allows us to show other states that North Dakota is staying in the technology forefront. To do otherwise is to disappear from the technology map in the future. To eventually emerge as a leader, we must "keep up" with the latest developments by understanding and implementing this new technology.

North Dakota has a crucial need for this technology – we can enable our students to excel in advanced courses by using video networking. Others will communicate better and faster than ever before. Still others can research topics at the click of a button. We need to keep up with the new trends and simplify the learning curve so that the technology increasingly obeys the Principle of Least Astonishment. In this way a richer and more capable technology environment will be integral to the future of North Dakota.

***"As the North Dakota University
System help desk grows, our help
desk services must keep pace."***





GOAL FOUR

Provide and manage resources to align with North Dakota University System's strategic goals.



STRATEGIES

- Identify new resources or re-purpose existing resources to enhance current services or initiate new services.
- Provide professional staff to meet North Dakota University System needs.

In order for higher education institutions in North Dakota to remain competitive and to offer support for students, faculty and staff, we must provide and manage resources to align with the North Dakota University System's strategic goals. To "keep our eye on the ball," we watch industry developments as we work to anticipate campus needs for new services and then develop the skills and facilities to provide those services. Where possible we transform existing offerings rather than radically altering the technology environment, building on our strengths in the most effective manner possible. We regularly evaluate the efficiency, quality and productivity of our technology services within the North Dakota University System, and analyze the success of the current offerings. After we've reviewed the use and effectiveness of our efforts, we enhance the most attractive services and drop ineffective ones. This allows people to continuously become more productive. For example, future system enhancements may include increased attention to additional system-wide or state-wide software site licenses, the potential for broader use of a common e-mail address and format, the possibility of branching into portal services and the addition of auxiliary systems to take advantage of the initial implementation of ConnectND.

"For North Dakota to become a player in the digital economy, the state needs a highly trained work force to attract new businesses and provide technical support to existing businesses."

At times, being a service provider in the higher education environment can be challenging. The need for campuses to retain a unique mission as well as nurturing entrepreneurial behavior means the common services we provide must be malleable into different environments, yet robust enough for a production environment serving over 60,000 people each year. Of course, none of this is possible without a trained, professional staff that meets the needs and requirements of our campuses. No state agency within any state can successfully deliver technology services without highly skilled, trained professionals who can educate and develop further projects. It is critical for our state to support a highly skilled workforce capable of developing and supporting the necessary infrastructure. This in a competitive environment where the number of technology positions in North Dakota is expected to grow by over 90 percent by the year 2005. We strive to offer better salaries, interesting jobs, and challenging careers. We continue to promote educational opportunities that bring new knowledge to North Dakota or help to tell others of the wonderful things we have done here.

